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MDR TB CASE MANAGEMENT ASSESSMENT

TAJIKISTAN PILOTS

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MDR TB CASE MANAGEMENT ASSESSMENT TAJIKISTAN PILOTS

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CONTENTS

ACRONYMS

CAR	Central Asia Region
CDC	Center of Disease Control and Prevention
CP	Continuation phase
CMCC	Central Medical Consultative Commission
DOT	Directly observed therapy
DST	Drug susceptibility testing
DOTS	Directly observed therapy short course (WHO strategy)
FD	Family doctors
FLD	First line anti-TB drugs
GFATM	Global Fund to combat AIDS, Tuberculosis and Malaria
GLC	Green Light Committee
IC	Infection control
IP	Intensive phase
MOH	Ministry of Health
MOJ	Ministry of Justice
MDR-TB	Muti-drug-resistant tuberculosis
NORC	National Organization of Red Crescent
NRL	National Reference Laboratory
NTP	National TB Program
PHC	Primary Health Care
PS	Penitentiary services
QHCP	Quality Health Care Project
RCTP	Republican Centre for Tuberculosis Patients
SE	Side Effects
SLD	Second Line anti-TB Drugs
SSM	Sputum smear microscopy
SNRL	Supra-National Reference Laboratory
TB	Tuberculosis

TOR	Terms of reference
XDR-TB	Extensive drug resistant tuberculosis
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
USAID	United States Agency for International Development

1. EXECUTIVE SUMMARY

The epidemiological situation in Tajikistan including pilot areas of the Quality Health Care Project Dushanbe city and Vakhdat rayon is complex. Acceptance and implementation of DOTS gave an opportunity to control the situation. There are signs of situation stabilization or even improvement. However, high rates of general TB mortality, SS+ and child morbidity as well as high prevalence of drug resistance indicate that TB control measures in quality and amount provided are not sufficient.

There is recognition of existing problems and declared will to address the problems. Recently approved NTP and the National guidelines for MDR-TB case management creates a solid base for MDR-TB case management. There is a network of specialized TB and general PHC institutions integrating TB case detection, diagnosis and treatment. There is also valuable experience of the NTP collaboration with international donors and donor organizations based on a declared commitment to international MDR-TB case management standards. Unfortunately, the country has limited financial and human resources: all anti-TB drugs are coming through the Global Fund and there is a big shortage of health care workers, especially in remote areas.

The weakest part of the MDR-TB case management (as well as non-MDR-TB) is the lack of a systematic approach (program management itself). The existing system cannot provide standard high quality services throughout the established period of treatment. There is a lack of teamwork for the results that count, and patients are not an active part of it. Quality improvement processes or performance analysis is not duly employed for quality improvement of the MDR-TB case management. There are gaps in knowledge and skills in some MDR-TB case management elements. These gaps can and should be removed. Basic rules for all case management participants should be performing procedures correctly and assuring strict obedience to rules accepted. Improving DOTS should be considered as a condition and the foundation for the success of MDR-TB case management.

MDR-TB diagnosis should be based on the results of DST examination in the laboratory that is certified internationally. The established MDR-TB diagnosis algorithm works in general. However, participation of GPs in case finding, including screening for general and respiratory TB symptoms, timely and accurate collection of information on TB contacts and previous TB episodes, and referrals to TB doctors for further examination, may be improved. Close analysis of the entire MDR-TB case finding and confirmation process jointly performed by TB doctors (from the DOTS center), MDR-TB and laboratory coordinators together with the QHCP responsible party is needed to make a list of possible interventions.

Being a supportive instrument for TB doctors, the CMCC plays the main role in MDR-TB case management. It decides on patients selected for treatment, approves treatment regimen, treatment location, and monitors treatment progress. The CMCC work is not effective because case presentations often are not properly prepared, and a lot of time is spent on trying to find out the real situation when a case is presented. CMCC tends to rely on radiological examination while the value of culture examination is underestimated. The number of effective drugs in regimens are not

discussed when decisions are taken to take out a SLD from the regimen because of side effects. CMCC loses the opportunity to get correct answers to the questions like why, how and where MDR-TB occurred, what was wrong with the TB case management in DOTS, and make valuable suggestions for the NTP improvement. Revision of the CMCC working session organization and retraining of CMCC members on all MDR-TB case management components is strongly recommended along with improvement of preparation for case presentation by TB doctors.

Even though there is clear description of who is and who is not to be selected for SLD treatment, cases of miss selection occur. This is easily avoidable through increasing knowledge and understanding of policy and procedures for selection and consequences for both patients and the program. The issue of selection is ethically very sensitive. The topic of patient selection for treatment should be an important part of any training.

Adequate treatment is the key to TB, including MDR-TB, control. Adequacy should be achieved for treatment regimen (effective drug composition), drug supply (uninterrupted for the entire course), and organizing of observation of patients taking their medications (DOT) during the established period (adherence). The weakest elements of the adequate MDR-TB treatment in the pilot area presumably might be DOT and adherence to treatment followed by drug combination and duration of treatment. It is advisable to discuss all cases of treatment "non-success" at CMCC sessions in order to clarify *why* it has happened. Summary of causes and suggestions might (and should be) identified there for improving adequacy of treatment applied by NTP in MDR-TB patients (but not exclusively).

Observation of drug intake is an essential component of the NTP. Based on observations during the visit and additional information obtained we may conclude that the real situation with DOT may differ substantially from the one officially declared. The NTP should encourage honest recording of DOT execution and avoid any punishment for low DOT rates. It will only be possible to plan DOT improvement if the situational analysis is based on true data.

The country receives SLD through the GDF IDF mechanism based on applications revised and approved by the GLC. The PIU works closely with the NTP drug manager on internal distribution, delivery and storing of SLD. Ongoing introduction of single drug-dose registration is welcomed. It is important for the program when 1) assessing adequacy of implemented treatment regimen in all phases, 2) calculating drug needs based on real consumption, 3) improving efficiency of the program, and 4) coping with misuse of SLD.

Side effects are an important part of patient treatment affecting adequacy of the treatment. Detailed analysis of preventive measures and comparison of the pharmaceutical management of side effects in cases with canceling or complete stopping of drugs responsible is needed. This analysis should include comparison of the actions taken with those recommended in the Guidelines for MDR-TB case management and algorithms of action used in other projects (e.g. Kazakh NTP, Partners in health, etc.).

Patient education is not systemic. Many patients are not aware about MDR-TB causes, mechanism, consequences, etc. They are not always aware of their personal responsibility for their own cure, and stopping TB transition to family members and the public. It is important to agree and implement a patient education system combining individual and group approaches linked to overall case management activities. Education of the public starting with close contacts should be improved, aiming at stigma reduction and social support for MDR-TB advocacy.

Prompt finding of the most infectious TB cases, diagnosis and adequate specific treatment is an absolute priority in infection control. All TB control and PHC institutions should better implement all IC measures applying IC principles presented in National Guidelines for MDR-TB case management and international recommendations. It could start with development of realistic institutional work plans aiming at TB transmission risk reduction based on priorities and resources available. It is important to develop IC strategy in the traditional Tajik family and in relation to numerous uncontrolled SS+ TB and MDR-TB cases. It is advisable to create a thematic working group for this task.

Adherence to treatment monitoring recommendations is important for clinical and programmatic decisions. Existing discrepancies in periodicity and scope of examination should be corrected and work automatically to involve doctors, DOT providers, laboratory workers, CMCC members into the process without additional paper work. CMCC members analyzing treatment progress and making decisions should be the first to discover occurring deviations. Regular analysis of the treatment monitoring performance is advisable when assessing current practice and MDR-TB case management performance.

The program uses a recording and reporting system which was developed based on international recommendations. It also includes some country specific working forms. However, introduction of some changes to the WHO recommended forms (taking out some elements) diminished the utility of the system and created a need for making additional working tables. Quality, completeness of data recorded and reported, as well as timing of data submission is sometimes problematic: incomplete or wrong data, delivery delay, limits or makes analysis impossible. Achieving better quality of MDR-TB (and DOTS) information collection and reporting should be the first priority.

Two weeks for intensive site visits, contacts with NTP participants, health officials and international program partners was a good opportunity to get a feeling of the MDR-TB case management situation in Dushanbe and Vakhdat. Nevertheless, some of conclusions should be further examined to confirm because of incomplete or fragmental information.

2. INTRODUCTION

USAID has recently launched the Quality Health Care project (QHCP), implemented by Abt Associates and Project HOPE, in five CAR countries.. Tajikistan is a country with a high burden of tuberculosis (TB) and multidrug resistant tuberculosis (MDRTB). The Tajik Government and international organizations have taken significant efforts to cope with the situation. DOTS started in Dushanbe and Rudaki district in 2002 and coverage of 100% of the country was achieved in 2008. Three successful applications to the Global Fund in rounds 3, 6 and 8 were submitted and the Green Light Committee (GLC) approved second line anti-TB drugs (SLD) at a special price for the treatment of multidrug resistant TB (MDR-TB) for a cohort of 50 MDR-TB patients in 2009 and for 400 more patients in 2010.

The QHCP in Tajikistan asked for a situation analysis of MDR-TB case management practices in Dushanbe city and Vakhdat rayon with a specific objective to reveal weaknesses and make recommendations to correct these weaknesses.

The assessment includes a description and comparison of the existing TB case management performance, taking into account the existing NTP documents and international recommendations. Data presented in the report were provided by TB institutions and/or collected locally when visiting different NTP participating institutions, checking recording and reporting forms, medical records, reports available at QHCP, talking to doctors and patients, and observing the routine practice of following procedures (see Visit program – Annex 1).

Knowing that the same people are responsible both for DOTS cat I and cat II as well as for cat IV treatment organization locally, we learned about existing TB case management practices and MDR-TB specifics by observing performance and asking additional indirect or direct questions when needed. Notes on collaboration of civil and penitentiary TB services presented a base on explanations provided by civil service participants because site visits to the penitentiary institutions were not possible due to restrictions of access to the penitentiary system.

3. BACKGROUND INFORMATION

Dushanbe is the capital city of Tajikistan situated in the Western part of the country with a population of 780,000 living in very compact conditions. ***Vakhdat rayon*** is one of 66 rural rayons of the country with a population of 279,845 living in 176 villages of 12 Jamoats. Some villages are distant and cannot always be reached, even by car.

The National program of protection of the population in the Republic of Tajikistan from tuberculosis during the period of 2010-2015 (National Tuberculosis Control Program, NTP) was approved by the Prime-Minister of the Republic of Tajikistan (Decision No 694 from December 30, 2009). The MOH and executive bodies of the administrative territories are responsible to provide funds needed for implementation of the activities of the program from their available budgets. The MOH is also responsible for coordination and technical support of the program. The program aims at achieving not less than 70% case finding of existing TB cases and cure not less than 85% of cases diagnosed. The goal of the program is to reduce TB morbidity by 41.0 and TB mortality by 7.0 per 100,000 of population by 2015.

Among the program priorities are:

- Continuous DOTS implementation with the emphasis on quality improvement of all components,
- Provision of constant political and financial support for the program,
- Enhancement of TB diagnostics including culture and DST for all cases,
- Implementation of international treatment standards and uninterrupted anti-TB drug supply;
- Assurance of DOT for all patients;
- Improving of recording system in accordance with the best international practice of partners,
- Expansion of TB/HIV and MDR-TB case management and other TB related problems,
- Strengthening TB prevention in medical institutions,
- Development of human and system resources needed for TB control,
- Mobilization and information of communities,
- Strengthening partnership and collaboration at the national and local levels, and including international,
- Monitoring and evaluation of TB control including operations research,
- Promotion of inter-sectorial collaboration (human rights, socio-economic and other relevant aspects),
- Monitoring results and effectiveness of the program by program indicators (SSM+ cases 70%, cure of SSM+ 85%, cure of MDR-TB 65%),
- Stopping further development of drug-resistant-TB by solving the problem of non-systematic treatment of known TB chronics (registering them according to WHO recommendations into diagnostic group IV).

3.1 TB SERVICE ORGANIZATION

TB services of Dushanbe city and Vakhdat rayon are an integral part of the national specialized TB structure working under the guidance and supervision of the Republican Centre of Tuberculosis Patients (RCTP). Dushanbe City Center for TB patients and Vakhdat Rayon TB center are the main TB units responsible for overall organization, guidance and supervision of TB case finding, diagnosis and treatment and control activities. Designated territorial PHC institutions have TB doctors and DOT nurses as their own staff members as well (Fig 1). Staffing and load of work in institutions participating in TB control activities is different in Dushanbe city and Vakhdat (Table I).

TABLE 1: CHARACTERISTICS OF TB SERVICES AND PHC IN DUSHANBE CITY AND VAKHDAT RAYON, TAJIKISTAN

Position/structure	Dushanbe city	Vakhdat rayon

Population served	780 000	279845
No of specialized TB institutions	2	1
TB beds/Children TB beds	0/50	0
TB doctors/nurses	22/27	3/2
Health centers/ with DOT	14/14	30/17
Health centers/ with SSM	14/7	30/1
TB patients on DOTS all (IP/CP)	184	90
MDR-TB patients all (IP/CP)	86	44
Rural district hospital (SUB)	0	6
Health centers at villages all/with DOT	0	80/48
Other DOT providers (health house)		0

3.2 LABORATORY SERVICE

As stated in the NTP, the national TB lab network is comprised of the National TB Reference Center consisting of the microscopy surveillance center and center for culture, four second level and seven first level labs.

Tajikistan National bacteriologic laboratory operates at the National center of tuberculosis in Dushanbe. Culture and DST are performed there using solid Lowenstein-Jensen media and Bactech. Twelve staff members work at the National laboratory: five doctors and seven technicians. The head of the NRL passed MGIT and fluorescent microscopy training in Munich, Germany at the Supra National Reference Laboratory of Tuberculosis in 2009. The Lab has received a Certificate for Drug Susceptibility Testing from the Academic Teaching Hospital Ludwig-Maximilians-University of Munich, Germany, and served as the Supranational Reference lab in 2009. The lab also successfully passed the next external evaluation in 2010. The Certificate states that "NRL Tajikistan has passed the external quality assessment of Drug Susceptibility Testing for Streptomycin, Isoniazid and Rifampicin by MGIT, Drug Susceptibility Testing for Streptomycin, Isoniazid and Ethambutol by proportional method and Drug Susceptibility Testing for second line drugs Kanamycin, Amikacin and Capreomycin." The load of work has increased significantly during the last four years (Table 2).

TABLE 2: LOAD OF WORK OF THE NATIONAL TB LABORATORY OF TAJIKISTAN IN 2007-2010

Year	SSM	Culture	DST FLD	DST SLD
2007	49,608	807	422	-

2008	118,201	879	497	497
2009	142,467	1,413	693	30
2010	155,431	3,815	1,200	100

There are two other oblast labs for culture located in Kulyab and Sughd, and 93 microscopy centers spread throughout the country. Cultures grown in Kulyab and Sughd are sent for DST to the National Lab, which is also responsible for external quality control of SSM performance in the microscopy centers.

The Republican clinical TB hospital in Macheton plans to open a renewed bacteriologic laboratory for culture and DST equipped by the KFW project by the middle of the year. The MOH plans to build another new third safety level bacteriological laboratory. The winner of the bid (the Foundation "Meriex") already presented their plan for construction to the broader audience, and a construction site has been approved. No one we met with was able to explain the future role of the new laboratory in the NTP.

3.3 TREATMENT ORGANIZATION

In- and out-patient facilities organize treatment of TB patients from Dushanbe and Vakhdat rayon. The decision for hospitalization is made by the CMCC. Because Macheton TB hospital is a distance of about 15-20 km from Dushanbe, the City TB Dispensary has a special agreement with the City Bus Company to deliver TB patients to the TB hospital twice a week after their CMCC session. The hospital also admits self-referred or PHC TB doctors' referrals if patients are in critical condition. The Macheton TB hospital has a capacity of 240 beds for:

- New SS+ patients (50 beds),
- MDR TB SS+ patients (50 beds),
- MDR TB SS-negative patients or those who have already converted (30 beds),
- Surgical patients (40 beds),
- TB of bones (two departments of 30 and 40 beds).

Patients are eager to be treated at the hospital for as long as possible because of the good conditions and nutrition provided there (which is better for the MDR TB patients because of the Global Fund grant).

The stay in the hospital is not always limited by duration IP. It depends on the decision of the doctor, sputum conversion, and the need to empty beds for newly diagnosed patients to be hospitalized. IP treatment in out-patient conditions is complicated, especially for MDR-TB patients. Nevertheless, there are numerous such patients both in Dushanbe and Vakhdat. We met and talked to several MDR-TB patients and we were not convinced with the quality of DOT being provided. The patients explained that when the decision is made to discharge a patient for out-patient treatment, the TB hospital doctor communicates with HC DOTS center (TB doctor) by mobile phone in advance. He/she is responsible to organize further treatment. Even though doctors say that

patients come to the DOTS center on the day of their discharge, we found that a delay of the first out-patient drug dose might be as much as a week or even more (one MDR-TB patient resumed his treatment after 141 days). Out-patient treatment is complicated because of very long distances between the DOT site and the residence of patients. There is evidence that DOT does not always work as intended *(See also section on DOT)*.

3.4 REFERRAL SYSTEM

Individuals having health problems normally go to the nearest (designated) health care institution. According to Tajik law, patients receive their health service at designated institutions based upon their registered place of residence. However, patients are not always asked to prove their residency registration. Sometimes they may go directly to the institutions which are providing better services and find ways around the regulation *(typical explanations work: arrived to live with children or relatives, newcomers, critical health status, etc.*). This is quite common in Vakhdat rayon because there is a lack of HC staff in the villages.

According to TB doctors, 50-70% of their TB patients come directly to them without a referral from PHC doctors. Patients come without a referral because they know the doctors from previous treatment episodes or by reputation, family connections, etc. Once patients enter the system, they move through it according to the normal flow chart: PHC-TB services-PHC (Fig 1). Patients coming to Dushanbe from rayons are among candidates at risk to default from treatment when they go back to their permanent residence *(eg. start to feel better or have no money to stay).*

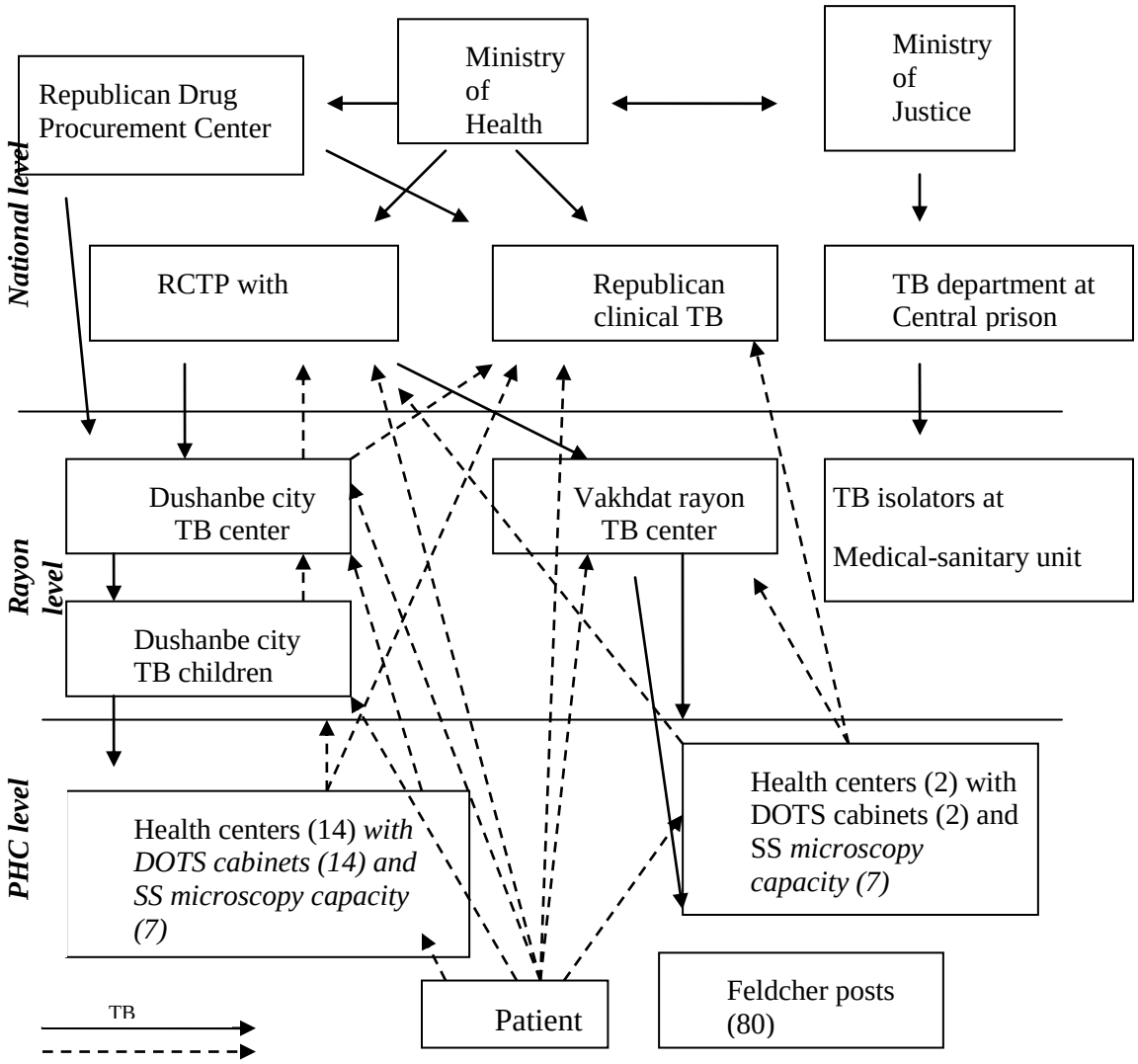
3.5 BASE FOR MDR-TB CASE MANAGEMENT ORGANIZATION

On May 22, 2009 the MOH approved "Guidelines *(Instructions)* for MDR-TB case management in pilot areas of the Republic of Tajikistan" (*further - Guidelines*) issuing Prikaz No 324. This document provides the basis for MDR-TB case management practice by defining and regulating the following aspects of treatment: registration and treatment outcomes (definitions), cohort analysis, diagnostics of MDR-TB, SLD treatment selection criteria, treatment of MDR-TB, TB drugs classes, mechanism of drugs supply for MDR- TB patients, design of treatment regimen, duration of chemotherapy, side effects, treatment monitoring, MDR-TB treatment in special circumstances, MDR-TB and HIV co-infection, adherence of MDR-TB patients, DOT of MDR-TB patients, contact tracing, and infection control.

3.6 COMMENTS AND CONCLUSIONS

Tajikistan (including QHCP pilot areas) has a solid base for MDR-TB case management based upon recently approved NTP and the National guidelines for MDR-TB case management. There is a network of specialized TB and general PHC institutions integrating agreed upon TB control activities needed for case detection, diagnosis and treatment. There is also valuable experience of collaboration with international donors and donor organizations based on a declared commitment to international MDR-TB case management standards. However, the country has limited financial and human resources illustrated by the fact that all anti-TB drugs are coming through GF and there is a big shortage of health care workers, especially in remote areas. Nevertheless, there is also recognition of existing problems and a declared will to cope with them.

Fig 1. Part of the Tajikistan PHC and TB institutions related to the QHCP



4. GENERAL EPIDEMIOLOGICAL SITUATION

Since the introduction of DOTS in 2002, mortality and morbidity case notification has increased significantly and has reached a plateau due to improved and expanded recording and reporting systems. Statistical data on TB SS+ in children and increased resistance of circulating Mycobacteria indicates that the general TB situation remains very complicated in Tajikistan (Table 3).

TABLE 3: NUMBER OF TB CASES NOTIFIED BY DOTS COVERED ADMINISTRATIVE TERRITORIES IN TAJIKISTAN, 2002-2010

Year	Reporting units	Total	Total new	Total relapse	*New SS+*	*New SS-*	*New EP*	SS+ <15	Relapse SS+
2002	1	292	205	87	*106*	*39*	*60*		
2003	2	1,284	899	385	*343*	*257*	*299*		
2004	17	2,274	1,675	599	*599*	*577*	*499*		
2005	30	4,675	3,292	1,383	*1,294*	*1,074*	*924*	34	756
2006	42	5,917	4,204	1,713	*1,757*	*1,208*	*1,239*	32	1075
2007	66	7,689	5,686	2,003	*2,075*	*1,966*	*1,645*	34	1104
2008	66	7,961	6,080	1,881	*2,044*	*2,266*	*1,770*	32	1039
2009	66	7,482	5,864	1,618	*1,972*	*2,208*	*1,684*	16	879
2010	66	7,691	5,959	1,732	*2,290*	*2,038*	*1,631*	35	1035

It is difficult to describe and compare the epidemiological situation in and between the pilot areas and in the whole country because of gradual uneven DOTS implementation *(including the DOTS related information system)* and quality improvement. Improvement of case finding increases morbidity (statistically) for some time.

Dushanbe city attracts people from everywhere, not only because of offering more job opportunities, but also by providing better health services. Morbidity rates are higher in the capital city compared to the whole country. However, this indicator is very complex combining morbidity of permanent city residents and the one of temporary residents, short and long term working immigrants and even "TB immigrants" looking for health care here. Unfortunately, such analysis is not done due to lack of information, which is easily obtainable but not collected. Mortality rates are more stable in this aspect.

Based on the size of the treatment cohort and population of 2009 we may assume that the epidemiological situation in the Vakhdat rayon is more complicated (Dushanbe population 780,000, patients on DOTS 184, MDR-TB patients on SLD 86; Vakhdat rayon – 279,845 - 90 and 44 accordingly). It is not clear if the situation is improving. In spite of the comparatively high treatment success (Annex 4), the rate of SS+ morbidity in Dushanbe is going up, the trend of mortality is unclear and MDR-TB numbers are growing. It is not possible to say that TB is under control in Tajikistan or Dushanbe city (Table 4).

TABLE 4: TB MORTALITY, MORBIDITY, AND NUMBER OF MDR-TB CASES REGISTERED

IN TAJIKISTAN AND DUSHANBE CITY IN 2005-2010, *PER 100,000

	2005	2006	2007	2008	2009	2010
Mortality: *RT*	6.8	5.7	5.7	5.4	5.9	5.8
Dushanbe	5.5	5.0	3.4	3.2	3.2	4.2
Morbidity all cases: *RT*	79.4	74.6	85.1	83.6	99.7	103
Dushanbe	112.4	103	112.5	85.6	85.3	67.7
Morbidity SS+: *RT*	17.3	23.4	27.7	27.3	26.3	30.5
Dushanbe	-	37.1	35.2	18.2	21.0	24.6
Morbidity 0-14: *RT*	0.45	0.43	0.45	0.43	0.21	0.47
Dushanbe			13.6	7.7	9.0	7.2
MDR-TB cases *RT*	n/a	n/a	n/a	n/a	319	333
Dushanbe	n/a	n/a	n/a	n/a	106	39

* Sources: RCTP

The seriousness of the situation is confirmed by high levels of resistant strains of MDR-TB circulating (Table 5). Numerous category IV and MDR-TB cases are in the society without effective specific treatment spreading resistant *Mycobacteria*. According to the MDR-TB coordinator there were about 100 MDR-TB cases which were not granted SLD treatment in 2010 in Dushanbe.

TABLE 5: PROPORTION OF MDR-TB CASES AMONG THE PATIENTS TESTED IN MDR-TB PILOT SITES OF TAJIKISTAN IN 2009-2010 AND 2011

Type of resistance	Period	New	Previously treated
Sensitive	Nov 11, 2009-Sep 1, 2010*	55.7	24.2
	Jan 1, 2011-Mar 26, 2011**	55.6	27.8
MDR	Nov 11, 2009-Sep 1, 2010	25.4	60.0
	Jan 1, 2011-Mar 26, 2011	25.0	58.3

Source: *GLC expert Kai Blondal report, Nov 2010

** Counted during the visit based on the RCTP Laboratory register for culture

4.1 COMMENTS AND CONCLUSIONS

The epidemiological situation in Tajikistan and the pilot areas is complex. Acceptance and implementation of DOTS led to the possibility to better know the real situation and provides an opportunity to control the situation. There are signs of stabilization of the situation and even of improvement. However, stable rates of general TB mortality, children and general SS+ morbidity and high prevalence of resistance indicate that TB control measures in quality and amount provided are not sufficient.

5. MDR-TB CASE FINDING AND DIAGNOSIS

33% of TB suspects are identified either through compulsory fluorography screening, or when examining patients with different complaints in health institutions (67%). PHC therapists quite often do not follow existing TB diagnostic algorithm and refer TB suspects to TB doctors without a differential diagnosis. They also do not record information important for TB case finding: no notes on duration of general and respiratory symptoms and no information on possible contacts with known TB patients or disease episodes in the past *(see also section V)*.

According to the Guidelines, MDR-TB diagnosis is made based on patient complaints, disease history, clinical examination, and results of DST. Sputum smear microscopy and a culture test are needed for MDR-TB confirmation and finding the most infectious patients. Guidelines say that all TB patients should be tested for MDR-TB. However, taking into account the shortage of resources available this examination now is limited to all SS+ patients and to some SS- patients (by decision of the treating doctor before treatment initiation): all patients with failing treatment, relapses, return after default, patients from contacts with known MDR-TB patients, contacts with patients who died while on DOTS treatment, patients from penitentiary system, migrants and HIV co infected.

The National Bacteriological Laboratory only began implementing culture and DST in 2007 and there is no database that could be used as an important source suggesting resistance patterns for contacts of known MDR-TB index cases yet.

The majority of MDR-TB patients included into the treatment cohort by CMCC were discovered during the DRS survey undertaken by Project HOPE in collaboration with the CDC and supported by CDC and the GF in June 2010-March 2011. Some patients are coming with failing DOTS category I or category II treatment. DST is not always performed automatically as prescribed by the Guidelines, because information whether the sputum for examination is sent to the laboratory for diagnostic or treatment monitoring *(including the month of the treatment)* is missing.

We met TB doctors at the DOTS center who are actively working with GPs at their own PHC facility and are insisting on adherence to the established TB case finding algorithm. However, some TB doctors still do not always give priority to SS microscopy and instead are relying more on X-ray examination for diagnosis. We observed cases where relatives or family members were at the Center representing the patient's interests and the patient was not there at all.

There are seven sputum smear microscopy centers in Dushanbe City PHC facilities and one center in Vakhdat rayon. In one PHC institution, the TB doctor complained that suspects and TB patients should not be sent to the nearest microscopy center just because of the administrative assignment of the catchment area. In several institutions, (Dushanbe, Vakhdat and Kurgan –Tube PHC facilities) TB doctors said that they do not completely trust SS microscopy results obtained locally. They had received a negative SS answer on a patient with serious lung damage and positive SS results the next day from the National lab for the same patient.

Sputum collection procedure is not controlled; in fact patients produce and collect sputum in the way they know how. This is one of the reasons for the low quality of material (saliva) delivered for examination to the laboratory. This may also be one of the main causes for the low percentage of positive SS microscopy and culture results. It looks like there is a vicious circle: doctors do not organize collection of quality material for examination and, later, they do not trust the results of the examination received. Some microscopy centers receive few samples for examination, as few as eight microscopic tests per week. It is known, that the quality of microscopy is bad if the workload is lower than 10-15 per day or conversely is very high.

There are problems both with delivery of materials for examination and also of the examination results. The laboratory says that informing the TB doctor about positive culture results is done by phone and written information is collected later. It was impossible to check on how this works; however, we found a two-month old culture and DST results that had not been collected from the box in the laboratory. It looks like the written report is not very important for decision making.

We received indirect confirmation of this while participating in a CMCC meeting where analysis of radiological chest examinations prevailed while culture and DST results were not available for many patients being presented. Delays in obtaining information important for effective treatment can occur because of delay in material delivery, plating, reading of growth results, and DST test performance. Some characteristics for the National Lab are provided in the Table 6.

TABLE 6: DELAY IN LABORATORY TEST PERFORMANCE IN THE NATIONAL LABORATORY, *DAYS, MEAN (MINIMUM-MAXIMUM)

Period analyzed	Sputum collection - Culture plating	Culture plating- Growth read	Growth read-DST plating	DST plating –DST reading
Jan-Mar 2011	1.3 (0-31)	36.7 (25-44)	9.5 (1-59)	28.7 (16-37)

*Source: TB06 register

Contamination of cultures was found as high as 4.2% and 4.4% of sputum samples sent for examination were rejected as being saliva in 2010. However, taking into account Certification of Munich Laboratory of Germany, the National laboratory should be trusted as providing accurate DST testing results needed for MDR-TB confirmation (Table 7)

TABLE 7: NUMBER OF MDR-TB PATIENTS DIAGNOSED IN TAJIKISTAN IN 2009-2011

	2009	2010	1Q 2011
National			
MDR-TB registered	141	333	197
SLD treatment started	52	245	90
Dushanbe			
SLD treatment started	33	106	40
Vakhdat			
MDR-TB registered		32	9
SLD treatment started		10	8

5.1 COMMENTS AND CONCLUSIONS

MDR-TB diagnosis is supported by the results of DST examination in the internationally certified laboratory. The established MDR-TB case finding and diagnosis algorithm works in general. However there are many aspects that might and should be improved, namely improved participation of GPs, better collection of information on previous TB episodes and contacts made (risk groups), and timely and accurate organization of bacteriological examination. Close systematic analysis of the entire MDR-TB case finding and confirmation in participation of TB doctor (from DOTS center),

MDR-TB and laboratory coordinators together with QHCP responsible is needed to make a list of possible interventions for improvement.

6. CENTRAL MEDICAL CONSULTATIVE COMMISSION FOR MDR TB CASES

The Central Medical Consultative Commission (CMCC) for MDR-TB cases is established to assist doctors in making decisions when managing MDR-TB cases. The CMCC is a powerful tool for improvement of MDR TB case management. The body operates in the Republican TB Center of RT and fulfills its functions as indicated in the MOH Prikaz # 324 of May 22, 2009. Actual members of the commission were appointed by the updated Prikaz of the MOH # 747 as of October 30, 2009. Functions of the CMCC are the following:

- Select patients for treatment on category IV treatment ,
- Select treatment site
- Make decision on regimen of treatment,
- Clinical review when side effects occur,
- Make decisions regarding termination of the IP
- Determine treatment outcomes,
- Develop and control implementation of the program reducing default and interruption of treatment.

CMCC meetings are supposed to take place twice a week (Tues, Fri) at the RCTP, Macheton or elsewhere starting at 2:00 p.m. and lasting as long as needed to give ample opportunity to present all cases based on preliminary registration. There was no meeting in the first week of the visit and the one we participated in occurred without preliminary registration. Overview of CMCC work points at an uneven workload during Q1 2011. There was a significant variation in cases presented as well as in the number of meetings. It is hard to believe that the CMCC would meet to discuss a single case, or how it is possible to work 6-7 hours starting at 2:00 p.m. (this estimate is based on 10 minutes to discuss one case with 37 patients to be presented in one session), (Table 8).

TABLE 8 LOAD OF WORK AT CMCC FOR MDR-TB, Q1 2011, *ABS. NUMBER, MEAN (MIN-MAX)*

	2011 Jan	2011 Feb	2011 Mar	Total Q1 2011
Number of CMCC sessions	6	8	9	23
Patients presented	135 22.5 (2-37)	112 14 (2-26)	133 14.8 (1-23)	380 16.5 (1-37)
First presentations *(Diagnostic cases)*	34 5.6 (2-13)	25 3.1 (1-9)	32 3.5 (1-11)	91 4 (1-13)
Follow up presentation	101 16.8 (7-27)	87 10.9 (1-22)	101 11.2 (1-9)	289 12.6 (1-27)
Treatment granted	34	25	31	90

Doctors who treat TB are asked to present the medical records for each patient including in- and out-patient treatment, results of bacteriological and x-ray examination, DOT control chart, and the informed consent form at the CMCC meetings. They also have to inform CMCC members on past X-ray results, TB drug resistance pattern at the moment of diagnosis, availability of TB contacts (index case), if he /she has had TB and is in the TB registry at the Central TB hospital, TB drugs resistance pattern of the contact if known and whether the contact has received treatment, listing TB drugs, and indicate the treatment site when presenting a newly diagnosed cases.

More information should be presented for patients who were treated in the past:

- When did previous episodes take place and what was the duration?
- TB drug resistance pattern in the past if available and the current up-to-date DST result,
- List TB drugs and the dosages which were used in the past and submit TB-01 treatment card if possible,
- To inform about intolerance of TB drugs, what drugs and how side effects were managed,
- What were the outcomes of the past episodes?
- Availability of registered TB contacts with TB cases,
- Was the contact registered at the Central TB hospital?
- What is the resistance pattern?
- Psychological and social characteristics of a patient with the goal to determine the default risk and patient's consent for treatment,
- Readiness of TB staff to organize conditions for patient adherence and full course of DOT (in the

case of defaults TB staff should involve close relatives).

The chairman gives the floor to the CMCC members to express their opinions on the case when all questions are answered. Finally, all CMCC members should make a consensus decision on each case being presented.

We participated in a CMCC session and noticed that the order established by instruction was hardly followed. We realized that the doctors presenting patients information had incomplete information on the patients' history. The National MDR-TB coordinator does not require forms be completed prior to the CMCC session, so the TB doctors complete them afterwards for patients who are admitted to SLD treatment only.

Previous episodes were not presented properly, including the lack of information on treatment regimens received, adherence to treatment, outcomes as well as resistance pattern of the isolates; epidemiological information was almost always "unknown"; most of the discussion time was spent on X-ray readings and discussions; no attention was given to the timing of diagnostic and DST sputum collection and the possible resistance amplification due to treatment provided afterwards.

Key programmatic questions were not asked and answered like: Why the patient has MDR-TB? What was wrong with patient treatment in their previous episodes? Why MDR-TB infection was possible? Will the standard treatment regimen be effective? Were arrangements needed for patient holding made? Is the patient really aware about his/her situation and determined to adhere to treatment? Important decisions on the patients' enrollment into SLD treatment were sometimes made without the agreement of the TB area physician. When discussing side effect management issues only one option was considered: cancellation of the SLD "guilty". There was no voting among CMCC members on some disputable issues.

6.1 COMMENTS AND CONCLUSIONS

The CMCC works a little bit as an assisting body for TB doctors (as stated in the guidelines), but it spends a lot of time on trying to get information in order to better understand the cases being presented. Those coming for consultation (better for decisions) often are not properly prepared (no information on topics listed in guiding documents, case presentations are not properly prepared, and data sheets not filled in). The CMCC spends a lot of time working as a substitute for the individual TB doctor collecting information during the meeting (which is impossible and very time consuming). In this situation, the CMCC loses its opportunity to play the central role in MDR-TB case management. This body, by reviewing all cases, may find the correct answers to the questions like why, how and where MDR-TB occurred, what was wrong with the TB case management in DOTS, and make valuable suggestions to the NTP administration.

I would suggest organizing a round table discussion on the role of the CMCC in the MDR-TB case management organization and in the entire NTP. Participants of the discussion should be the NTP leader, CMCC chair and selected or all members, MDR-TB coordinator, TB doctor from the DOTS center, and invited participants knowing the CMCC work specifics in other projects.

A workshop for updating all CMCC members, MDR-TB coordinators, and DOTS TB doctors is strongly recommended with an emphasis on understanding case management organization and case presentation preparation.

7. PATIENTS' SELECTION FOR SLD TREATMENT

Guidelines for MDR-TB case management in the pilot states that the category IV treatment regimen should be prescribed for patients with ineffective category I and II treatments (chronic TB forms) and patients from contacts with known MDR-TB. The same document also says that category IV treatment should not be provided to the following patients:

- HIV/AIDS in terminal phase,
- Terminal stage of the disease and having serious concurrent diseases,
- Patients who refused SLD treatment or are being directly observed during the entire treatment course,
- Patients having other concurrent diseases which might be considered by CMCC to be contraindications for the MDR-TB treatment.
- Constant non-adherers, drug users and alcoholics will be considered individually.

There is a box "Treatment selection group" on the "Decision of the CMCC on patient treatment in category IV" form. It requires classifying all patients into three groups: I - can be included immediately, II -could be included *if/when…* and III - cannot be included *because of….* There is a supporting table with criteria to facilitate patient classification but it is not used at all. Decisions formulated at the CMCC we participated in were phrased somewhat like: "…prescribe the category IV treatment and find out how the treatment might be organized…" *(because of no available MDR-TB beds for hospitalization).* Readiness of the system to ensure holding of the patient on DOT, knowledge, understanding and determination of patients' adherence, were not properly analyzed and taken into consideration when deciding on patients' inclusion into a treatment cohort (see also section V). The TB area doctors' opinion was ignored *(he was not asked)* while selecting MDR-TB patients for SLD treatment. The CMCC members do not think in terms of the number of effective SLDs in each patient. It looks like the clinical status of patients is not properly weighted and the CMCC possibly included critically ill patients for the SLD treatment. For example, in the Q1 2011, the CMCC enrolled nine MDR-TB patients in Jami rayon and two of them died during the first month of hospitalization in the MDR-TB ward.

7.1 COMMENTS AND CONCLUSIONS

There is a clear description of who is and who is not to be selected for SLD treatment and in what conditions. The CMCC makes a decision during its meeting. Preparation for the decision is a process that suffers from the weaknesses described above and in the section on CMCC. They are easily avoidable through increasing knowledge and understanding of policy and procedures of selection and consequences for both patients and the program. The issue of selection is ethically very sensitive. The topic of patient selection for treatment should be a part of all trainings.

8. ADEQUACY OF TREATMENT

Adequate treatment assumes the use of the recommended number of effective drugs in appropriate dosages with relevant duration of treatment course and under direct observation. A drug is counted effective if there is laboratory confirmed susceptibility to it. In case there is no DST result, a SLD might be considered as effective if it was not used previously used by a patient longer than one month.

As formulated in "Instructions on MDR-TB case management in pilots of Tajikistan" SLD regimens for treatment of MDR-TB cases should be built using the following rules:

- Treatment regimen includes no less than four effective anti-TB drugs in the intensive phase ,
- Injectables should be used for not less than six months and at least four months after culture conversion.
- Minimal duration of SLD treatment course- 18 months after culture conversion. Each dose should be observed. Each dose taken should be marked on the treatment cards.
- Pyrazinamide might be added.
- Not less than three second line drugs should be used in the continuation phase (CP).

Based on rules the NTP established to use **Cm +Ofx +Pto +Cs +PAS +Z for** MDR-TB treatment in IP and **Ofx +Pto +Cs +PAS** in CP. Changes in the regimen used might occur when the CMCC authorizes it (mainly when managing adverse reactions by temporary or permanent removal of "guilty" drugs). Drugs are taken seven days a week during IP and CP while in hospital and six days a week if treatment occurs in an out-patient setting.

We analyzed data from the Registry of MDR-TB patients on SLD treatment (cohort started in 2009) provided by the National MDR-TB coordinator, Dr. Safarova Zulfiya counting the number of effective drugs (to which susceptibility is maintained and/or drugs that were previously never used by patient). The results showed that 38% of patients most likely received no more than three effective drugs in the IP (Table 9).

TABLE 9: NUMBER OF EFFECTIVE SLDS USED IN DUSHANBE MDR-TB PATIENTS IN 2009

Number of effective SLDs	IP		CP	
	#	%	#	%
5 effective SLDs	9	29.0	-	-
4 effective SLDs	10	32.3	11	35.5
3 effective SLDs	8	25.8	15	48.4
2 effective SLDs	4	12.9	5	16.1
1 effective SLDs	0	0	0	0

Total	31	100	31	100

We also counted the duration of the IP and CP, hospitalization, and the entire treatment whenever possible. MDR-TB patients who completed the SLD treatment course had an average of 474 days or 15.8 months of treatment with a variation from 19 days (this patient died) to 623 days. Results of the treatment duration overview might suggest that some patients might be on IP too long (16 months) or too short (6.6) knowing that the mean conversion time is 3.8 months from the treatment initiation and injectables should be used at least four months after culture conversion. Of course, it depends on clinical evidence and bacteriological confirmation, however, we found a few failed patients were still on ineffective treatment regimens when a discussion on the cancellation of SLD treatment would be appropriate.

Doses of SLD given were in accordance with national and international guidelines in all patients split into two or three intakes for better adoption while in Macheton. Doctors try to change it to one daily intake before discharge, but some patients stay on split dosage, sometimes possible self-administration. (Table 10).

TABLE 10: DURATION OF SLD TREATMENT AND DOSAGE OF DUSHANBE MDR-TB PATIENTS IN *2009*

	Mean	Min-Max
Duration of IP *days (months)*	271 (9)	189-499 (6.3-16.3)
Duration of hospitalization *days (months)*	200 (6.7)	13-495 (0.4-16.5)
Duration of entire treatment *days (months)*	474 (15.8)	19-623 (0.6-20.8)
Dosage	Correct	Correct
Timing of culture conversion *days (months)*	114 (3.8)	31-244 (1-8)
Timing of SS conversion *days (months)*	133 (4.4)	31-369 (1-12.3)

Source: Registry for MDR-TB patients

8.1 COMMENTS AND CONCLUSIONS

Adequate treatment is the key to TB (including MDR-TB) control. Adequacy should be achieved for treatment regimen (effective drug composition), drug supply (uninterrupted for the entire course), and intake organization (DOT) during the prolong period (adherence). The results of non-adequate treatment are "non-success" (failure, death, default). It is possible (and we tried) to look into non-adequacy at the group level (percentage of patients with established number of effective drugs, correct dosage, on DOT, and correct duration of phases). We got some ideas, but the time was too short and information was not always easy obtainable. Treatment outcomes in cohort analysis indicate that there are certain weaknesses in each component (it would be useful to check quality of the outcome analysis itself). CMCC sessions should be the first place where causes of the "non-success" are presented and discussed and decisions made regarding each individual case. Summary of causes and suggestions for the NTP officials might (and should be) born there. The above-mentioned

discussion (on CMCC section summary) should result in defining the CMCC's role in improving adequacy of treatment applied by the NTP in MDR-TB patients.

9. DOT PERFORMANCE

The approved Guidelines say that intake of anti-TB drugs should be directly observed throughout the treatment course regardless of where treatment takes place; DOT arrangements should be acceptable for the patient and family; health care workers including PHC institutions are the best providers, but it could be done by trained community members as well; family members and relatives are not recommended because they fall under the influence of the patient; rules of the DOT should be explained to the patient before initiation of treatment in order to increase the patient's commitment for treatment results, reduce the risk of interruption, and facilitate tracking in case of default and returning to treatment.

It is simple to organize DOT during the IP taking place in TB hospital even when splitting doses. DOT during CP is complicated both for patients and providers because they must meet five times a week in the case of category I and III patients and six times/week for category II and IV patients. It is not surprising that things are not working well in CP, especially in Vakhdat. It is impossible to collect drugs daily if the DOT treatment site is located elsewhere. DOTS center workers confirm providing drugs for self-administration, including SLD. These cases are not properly recorded in MDR-TB 01 and it is difficult to measure how it affects treatment outcomes.

We found a registry for defaulters in only one Dushanbe DOTS center. Explanations that the system exists and that DOT providers inform the TB and PHC area staff about missing patients each day and they later trace defaulters were not convincing.

We talked to a young MDR-TB patient who is receiving IP SLD treatment and is planning to go to the native kishlak without any arrangements after discharge. The patient confessed at the end of our conversation she had a weak perception that adherence is so important. She said she can't afford traveling to the DOT sites from the kishlak. It might be concluded there is no strong system to hold patients when transferring them from in- to out-patient settings and vice versa. Existing stigma and discrimination of TB and MDR-TB patients also complicates ambulatory treatment. Patients prefer to keep their disease a secret in order to avoid social isolation, not only for the patient, but for the family as well.

We found one treatment site that was closed until 10:30 am for a meeting at the RCTP and patients were waiting at the door. There was a patient with SS+ XDR-TB receiving standard SLD treatment regimen among them. The DOT nurse at the PHC facility served several patients at the same time and she had to leave the DOT room in order to give an injection to another patient. She was not able to mark the TB-01 in a timely manner about the work performed.

One adult individual arrived to collect drugs for his family member for a week or so and the TB doctor explained that this arrangement works. There were no talks about side effects and little about other treatment related things, probably, because of the many visitors.

Based on our personal observation in Dushanbe DOT sites we agree with the Project HOPE monitoring group's conclusion that DOT in Dushanbe comprises about 50% of patients, and that TB drugs are given to patients for self-administration. On the other hand, we met several patients who receive DOT at the DOTS center without interruptions.

There are 86 MDR-TB patients receiving SLD treatment in Dushanbe city and 44 in Vakhdat as of April 19, 2009.

9.1 SOCIAL SUPPORT

Social support is very welcomed because almost all patients undergoing SLD treatment really need it. Patients and doctors were asked to share their opinion: they appreciate the food packages very much, but hygienic packages are not important for them. Only MDR-TB patients currently receive food packages through GF: 185 in Dushanbe (1cohort -106 patients, 2 cohort -39 patients, 3 cohort-40 patients) and 24 – in Vakhdat. Patients do not have money to pay for public transportation to get to the DOT site. The Head of the Health service department at the MOH also asked for increasing social support to the patients. A suggestion for supporting the development of local farming capacities should be explored for TB patients while on inpatient treatment (the same idea was voiced at the Macheton TB hospital as well).

Incentives paid for some categories of medical staff from the GF budget created tension between professionals and demotivated those who are not involved in the management of MDR-TB patients. In general, it was difficult to get a general picture of social support and the effect of the activities during this trip.

9.2 DOT VOLUNTEERS

The initiative of the USAID project "Dialogue on TB and HIV" (former Health Outreach Project) and Dushanbe City Healthy Life Style Center (HLSC) to contribute improvement of DOT by training volunteers resulted in availability of 30 active individuals out of 48 trained in the capitol city. Volunteers are ready to provide education and directly observed treatment to patients on CP as agreed between the city TB center and HLSC using drugs received from the TB center. We did not meet the volunteers but according to Anjir, coordinator for Community Action for Health of QHCP, some volunteers do and some don't collaborate well with the DOTS centers. It is necessary to study the situation and the accumulated experience of the above mentioned organizations. Dr. Nabiev T.R, director of Dushanbe City Healthy Life Style Center, says volunteers are becoming passive and even leaving the program, so some kind of motivation is needed. There are two volunteers providing DOT in two kishlaks of Vakhdat rayon where there are no health service providers. Volunteers are trained and supported by the Red Crescent. They receive TB drugs from the rayon TB Dispensary for the whole CP however they do not submit reports to the TB Dispensary. The coordinator for the Red Crescent supervises their work from Vakhdat.

These two initiatives in Dushanbe and Vakhdat should be studied closely. In case they work well and result in good treatment outcomes, the experience should be applied especially in rural areas where there are no professional health service providers close to the TB patients.

9.3 COMMENTS AND CONCLUSIONS

Observation of drug intake is an essential component of the NTP. There is a structure and a system of DOT delivery developed with resources available. Based on observations during the visit and additional information obtained, we may conclude that the real situation with DOT is unclear and might be alarming in some locations. It is vital for health providers to record DOT exactly as it occurs by completing and signing the MDR-TB 01 form. Introducing and ensuring that each drug intake is recorded while observing the actual SLD intake is essential. The NTP administration and other responsible parties should encourage recording of DOT execution as it is done in all

situations, and avoid any punishment for collecting of real data. It will only be possible to plan the next steps if the situational analysis is based on true data."

10. TB DRUG MANAGEMENT

TB drugs are purchased by the Project Implementation Unit of Global Fund and received and stored at the Republican Medicine Procurement center's Central TB drug stock. It releases drugs upon request to TB hospitals and TB centers. DOTS centers which are located in PHC institutions receive drugs from city or rayon TB centers. FLD are provided in kits to the institutions where patients are assigned. If a patient goes to the hospital for IP treatment, a corresponding box containing the kit is given to the hospital. When the patient is released, the remaining drugs are given to the institution providing the DOT . Disbursement of drugs is possible only upon authorized request of the institution providing the DOT . When patients leave the hospital, they may receive several doses of anti-TB drugs for self-administration for a transition period.

There are "Instructions on information system of TB drugs management in the frame of National TB program of Tajikistan (2003-2010)" which were approved by the MOH on October 28, 2006. The instructions are linked to the management of FLD.

SLD are provided to the Macheton hospital (six months stock) and their stock is replenished based on consumption reported. When patients' switch to outpatient treatment area TB doctors receive the SLD needed based upon the decision of the CMCC. It is worth mentioning that the rayon TB center does not control (maintain) stock of SLD. Patient's drugs are at the facility which is providing DOT. We found that those institutions do not always have the possibility to keep PAS in a refrigerator (Table 11).

We found it difficult to discover what happens with doses of drugs that are unused because of side effects, or a decision is made to temporarily stop using "responsible" drugs, or doses patients do not come to collect. We did not see the practice of adding these doses to the end of the IP or CP. More than that, it is not clear what the length of IP is (DOTS cat I and cat III) because we were given different interpretations (56 and 53 doses).

There are no problems with fixed dose combinations of FLD while single SLD might be easily used if available. It is not clear if doctors are firm in avoiding the non-systematic use of these drugs. *One patient who is on an SLD regimen now and is SS+ told us that in 2009 she had several months of Ofl, Km, Am treatment using personally purchased drugs prescribed by a doctor.*

All facilities should keep records in the SLD TB register to show the quantity received and distributed. Local accountability of drugs used for treatment is problematic. In situations when the use of one drug is temporarily stopped it is useless to mark the drugs intake (one for all drugs).

In the framework of GF, R8 work began on the development and implementation of an information system for SLD management. A thematic working group is in charge of this task. Forms that have been developed began being tested in pilots in Dushanbe and Macheton in February 2011. After necessary adjustments are made, the forms will be approved for national use. A revised recording and reporting system will allow accounting for drugs received and disbursed both to institutions and to patients. Trainings on the use of the new forms will be organized for individuals who are responsible for drug management (see also section XIV).

TABLE 11: SITUATION WITH SLDS IN TAJIKISTAN AS OF MARCH 25, 2011

SLD	Doses available	Consumed Jan-Mar 2011	Available for months
Cm	3,695	14,047	0.8
Ofx	13,560	11,361	3.5
Pto	146,480	42,663	10.3
Cs	183,710	36,665	15
PAS	116,455	30,928	11.3
Lfx	143,770	53,680	8
Am	5,360	0	
Mfx	2,600	78	100

10.1 COMMENTS AND CONCLUSIONS

The country receives SLD through the GDF IDF mechanism based on applications revised and approved by the GLC. The PIU works closely with the NTP drug manager on internal distribution, delivery and storing of the SLD. Revising the current information system is important. The revision should result in good tracing of each dose of each SLD, and it is important for the program when 1) assessing adequacy of implemented treatment regimen in all phases, 2) calculating drug needs based on real consumption, 3) improving efficiency of the program, and 4) coping with the misuse of SLD. Hopefully, the new system will link CMCC decisions with disbursement in the central TB stock avoiding complicated administrative authorization process.

11. TB DRUG SIDE EFFECT (SE) MANAGEMENT

Adverse events are monitored by TB specialists during regular ward visits and clinical examinations during the IP. However, monitoring is more problematic when patients are discharged from in-patient facilities and are not seen by TB doctors very often. All adverse events should be properly recorded in special registers for side effects (SE) to SLD and later reported to the RCTP.

Detailed information on the frequency of different SE in patients on SLD treatment is presented in the Kai Blondal report of Nov 2010 (Table 12). The Guidelines for MDR-TB case management in pilot areas present recommendations on preventing and treating existing side effects. Algorithms recommended by the RCTP for the pharmacologic management of the main side effects includes symptomatic treatment, division and temporarily lowering the dose, temporarily stopping use of the

suspected drug, and finally cancelation of the drug. The sequence is not always followed; for example, dosage reduction was not often used to manage SE.

TB doctors use temporary cancellation of SLD followed by permanent cancellation. Some providers go straight to permanent cancelation of a drug. It looks like there is some misuse of the term "serious side effect". We participated in the CMCC when TB doctors provided arguments such as the following: "patient says he/she feels bad and says he/she cannot take the drug". This statement by the patient is understood as imperative by the doctors. We heard this argument three or four times during one CMCC session. Removal of the suspected drug was agreed in all cases. For one patient, it was the second drug that was taken out of the regimen. Deeper analysis is needed to determine if all existing possibilities are explored before making the decision to weaken the regimen, which might be already critical because of few effective drugs in the regimen. It appears that the patients are not psychologically ready to confront the difficult treatment. If patients knew more about what is going to happen during treatment and how important is to have an adequate treatment regimen, they probably would deal better with SE.

Doctors have complained, and it has to be solved, that there is a lack of pharmacologic management of SE. Timing of drug intake and the aspect of nutrition and diet should be adjusted better for these patients.

The MDR-TB ward of Macheton has the following drugs for management of side effects: solution of Na Cl, Ringer solution, glucose solution, Vit B1, B6, B12, indometacin, diklofenac, prometazin, Cerukal, Almagel, Tailenol, and Amitriptillin. The DOTS centers and TB doctors there do not have these opportunities and patients are left alone with their SE problems. The head of the Dushanbe TB Center said that they receive about 49 somoni (USD 10) per MDR TB patient annually for pathogenic drugs (to treat SE).

TABLE 12: FREQUENCY OF SIDE EFFECTS AMONG MDR-TB PATIENTS ENROLLED FOR SLD TREATMENT *(SOURCE: GLC REPORT OF KAI BLONDAL, NOV 2010)*

First cohort enrolled in 2009					
Side effects	No of pt	%	Agent	No of pt	%
Total patients	50		Total patients	50	
Mental problems	3	6.0	Ofx	0	0.0
Headache	9	18.0	Cm	0	0.0
GI side effects	23	46.0	Pto	3	6.0
Sleep disturbances	11	22.0	Z	11	22.0
Arthralgia	15	30.0	PAS	10	20.0
Dermatitis	7	14.0	Cs	0	0.0

Visual impairment	2	4.0			
Second cohort enrolled in 2010					
Side effects	No of pt	%	Agent	No of pt	%
Total patients	192		Total patients	192	
GI side effects	23	12.0	Ofx	1	0.5
Arthralgia	47	24.5	Cm	5	2.6
Visual impairment	1	0.5	Pto	0	0.0
Allergy	17	8.9	Z	7	3.6
Hearing impairment	6	3.1	PAS	12	6.3
CNS disorders	16	8.3	Cs	4	2.1
Compromised kidney function	3	1.6			

11.1 COMMENTS AND CONCLUSIONS

Side effects are an important part of patient treatment, as it affects the adequacy of the treatment. Detailed analysis of preventive measures and comparison of the pharmaceutical management of SE in cases with canceling or complete stopping of drugs responsible for the SE is needed. The analysis should include a comparison of the actions taken to the SE recommendations as described in the Guidelines for MDR-TB case management and to algorithms of action in other projects (eg. Kazakhstan manual on SE, Partners in Health).

12. ORGANIZATION OF PATIENT EDUCATION AND LEVEL OF PATIENTS' KNOWLEDGE ON TB AND MDR-TB

When talking to patients it becomes clear that patients' knowledge differs. The majority of patients have a superficial understanding about their disease, while some patients know a lot about TB. When visiting Macheton, one of the MDR-TB patients knew about a dormant type of Mycobacteria and could explain the reasons for multi-drug resistance and long lasting treatment. Hopefully, it was not a unique example of good TB knowledge due to the excellent work of patient educators. TB patients should sign a written agreement before starting an SLD treatment course. It will also help to achieve a general better understanding of TB.

Site visits included participation in the CMCC, and talking to doctors in their offices. The doctors disclosed big differences between what people know and say, and what they do. Learning things to do and transforming it to everyday practice is the most important and probably most difficult task. Patients should be educated to know general facts on TB and MDR-TB, and to behave consciously

before, during and after MDR-TB treatment. It would be good to start introducing well organized patient, doctor, and society education activities during the CP at the PHC facility. Patients said they need a more supportive attitude from the health care workers and trustworthy communication. Patients seek personal psychological support and TB knowledge from health staff who also might be lacking in such TB knowledge and skills.

TB patient education in the Macheton TB hospital is provided by the head of the TB ward, chief nurse and TB doctors. TB doctors say they provide patient education for prevention of defaults and interruptions before hospitalization. Dushanbe TB doctors say their patients have the mobile phone numbers of TB doctors for consultations at any time. Some MDR-TB patients have wrong perceptions about ways of TB transmission. Many patients face stigma in the community.

12.1 COMMENTS AND CONCLUSIONS

Patient education is not systemic. Many patients are not aware about MDR-TB, causes, mechanism, consequences, etc. There is no understanding of the responsibility for each person and their family (and public health) to link their current situation with previous episodes, public opinion, and personal behavior (adherence to treatment). A high percentage of patients who transferred out (left to work elsewhere) demonstrate not only the importance of social support, but also the need for better patient education. It is important to agree and implement the patient education system combining the individual and group approaches and linking them to the overall case management activities. Education of the public also should be improved with a goal of stigma reduction and social support for MDR-TB advocacy.

13. AVAILABILITY OF ALL MEASURES OF INFECTION CONTROL IN SITES

The NTP has a protocol on Infection control in the "Instructions on MDR-TB case management in pilots of Tajikistan" which was approved on May 22, 2009. It says that each facility should develop the following rules:

- Admission of patients,
- Hospitalization of MDR-TB patients,
- Organization and conducting sputum collection,
- Storage and transportation of bacteriologic materials,
- Organization of DOT,
- Work with bacteriologic materials.

Chief administrative staff of health institutions, including specialized TB institutions, is responsible for organizing IC work of the institutions according to the existing guidelines, and the health care staff are responsible to obey the established rules. However, we have not seen those rules working.

Organization of case finding and diagnosis does not support prompt finding and isolation of infectious cases: 60% of cases are found during prophylactic screening, only 30% of new TB cases are SS+. There is no information on general and pulmonary signs and symptoms and often SS microscopy is not prescribed when suspects are referred to a TB doctor for consultation. According to the MDR-TB register, SLD treatment starts on average after 104 days from DST result (with a variation from 16 to 319 days).

During the visit, it was noticed that there is a separate entrance to the DOT room located at the PHC facility for TB patients, but there is no triage of infectious TB patients from converted, simple category I or III from category II and category IV or MDR and even XDR-TB in ambulatory conditions. There is no real separation of infectious and non-infectious patients when performing diagnostic procedures and during hospitalization even though their status is known. This lack of separation includes patients with susceptible and resistant TB, including MDR-TB. We talked about mixing patients at the DOT sites which is an example of bad organization of infection control (see section VIII).

Patients who are hospitalized in different wards share many joint utilities like eating areas, bathroom, WC, and procedure room. They come to collect their drugs in the same DOT area. Patients from different departments can move with no real restriction inside the facilities and in the territory. Because of the long stay (some are there for the entire treatment course), patients socialize intensively and run the risk of cross contamination.

The National Bacteriologic laboratory staff are required to pass X-ray and health screenings twice a year and, fortunately, there was no recent TB incidence among them.

The PHC doctor is in charge of TB contact screening. The number of contacts per one TB index case in average is about five (including three to four kids). We analyzed MDR-TB patients of Dushanbe who were enrolled for SLD treatment course in 2009 and are in the National MDR-TB register. The analysis showed that 12 (35%) out of 33 MDR-TB patients of Dushanbe had TB contacts in their families.

Patients and health staff do not use individual protection measures as recommended even though the Global Fund program provides respirators.

13.1 COMMENTS AND CONCLUSIONS

Prompt finding of the most infectious TB cases, diagnosis and adequate specific treatment is an absolute priority in infection control. Administrative, individual, and other recommended IC measures should be implemented where appropriate and affordable. All TB control institutions should improve this aspect of their work, and should start revising all aspects of their work that is related to TB case management and is important for the reduction of infection transmission, and apply the IC principles presented in "Guidelines (MDR-TB Instructions)" as well as international

recommendations. This revision should result in the development of realistic institutional work plans aiming at TB transmission risk reduction. It is important to develop an IC strategy in the traditional Tajik family and in relation to numerous uncontrolled SS+ TB and MDR-TB cases. It is advisable to create a thematic working group for this task.

14. MONITORING OF MDR-TB PATIENTS ON SLD TREATMENT

According to the "Guidelines (MDR-TB Instructions)" monitoring of MDR-TB patient treatment consists of monthly sputum smear microscopy and culture during the intensive phase, and later in the continuation phase, on a quarterly basis. Based on the electronic MDR-TB register for the MDR-TB cohort of 2009, only 10 out of 32 (31%) MDR-TB patients who were enrolled in the 2009 cohort in Dushanbe had correct treatment monitoring by sputum smear microscopy. 22 MDRTB patients had monthly microscopy examinations which created an extra load for the laboratory (Table 13).

TABLE 13: SLD TREATMENT MONITORING OF DUSHANBE MDR-TB PATIENTS OF THE 2009 COHORT

Monthly SS monitoring	# of MDRTB patients assessed	%
7 mo	2	9.1
8 mo	3	13.6
9 mo	4	18.2
10 mo	4	18.2
12 mo	7	31.8
13 mo	1	4.5
20 mo	1	4.5
Total	22	100

The correctness of monthly culture treatment monitoring was difficult to assess because doctors put date of culture received instead of date the culture was submitted. Ten (40%) out of 25 Dushanbe MDR-TB patients of the 2009 cohort had incorrect treatment monitoring by cultures according to the TB-06y laboratory register.

14.1 COMMENTS AND CONCLUSIONS

Adherence to treatment monitoring recommendations is important for clinical and programmatic decisions during the course of treatment and for the correct final treatment outcome classification. A small sample analysis of monitoring performance revealed discrepancies with periodicity and scale of agreed upon examination. The discrepancies should be corrected and monitoring should work toward automatically involving doctors, DOT providers, laboratory workers, CMCC members into the process without additional paper work. Everyone has to know their role and act accordingly. CMCC members analyzing treatment progress and making decisions should be the first to point out when deviations are occurring. Periodical analysis of the treatment monitoring performance is useful when overviewing current practice and MDR-TB case management performance.

15. RECORDING AND REPORTING SYSTEM

The country adopted the basic DOTS information system in 2003. Recording and reporting system related to the MDR-TB case management was developed based on the known WHO guidelines for programmatic management of MDR-TB and was introduced in May 2009 by the Prikaz of the MOH No 324, as a part of the Guidelines.

The majority of forms used in Tajikistan are similar to those recommended by WHO. Nevertheless, there are some discrepancies between them because of different definitions used for MDR-TB case classification. WHO recommends classification of MDR-TB cases by history of previous treatment; however, it is not used in Tajik NTP forms (Table 14).

TABLE 14: COMPARISON OF WHO AND TAJIK NTP RECORDING AND REPORTING FORMS USED FOR CATEGORY IV PATIENTS

WHO recommended	Tajikistan	Comments
Category IV Treatment Card	Category IV Treatment Card	In accordance
Category IV Register	Register of MDR patients	In accordance
Request for sputum examination	Request for sputum micros-copy, culture and DST examination	In accordance
Laboratory Register for culture and DST	Laboratory Register for culture	In accordance
Quarterly report on MDR-TB detection and Category IV treatment start	Quarterly report on MDR-TB detection and Category IV treatment start	**WHO**: new, FLD, FLD+SLD, total (confirmed and suspected) **Taj:** once again diagnosed; relapses, after interruption,

		failure cat 1, cat II; other
Six month interim outcome assessment of confirmed MDR-TB cases (to be filled out nine months after treatment begins)	Six month interim outcome assessment of confirmed MDR-TB cases (to be filled out nine months after treatment begins)	In accordance
Annual report of treatment result of confirmed MDR-TB patients starting Category IV treatment (to be filled in 24 and 36 months past the closing date of the year of treatment)	Annual report of treatment result of confirmed MDR-TB patients starting Category IV treatment (to be filled in 24 and 36 months past the closing date of the year of treatment)	**WHO**: new, FLD, FLD+SLD, total **Taj:** once again diagnosed; relapses, after interruption, failure cat 1, failure cat II; other
Proportion of confirmed MDR-TB cases started on MDR-TB treatment by quarter registered as MDR-TB case and reason for not yet starting MDR-TB treatment	Proportion of confirmed MDR-TB cases started on MDR-TB treatment by quarter registered as MDR-TB case and reason for not yet starting MDR-TB treatment	In accordance (**NOT USED by NTP)**
Interim result of MDR-TB treatment by quarter of treatment start in confirmed MDR-TB	Not available	
Not available	Laboratory register of tests of MDR-TB patients enrolled for SLD treatment (TB-06y)	It is part of Category IV patients register. No need for lab workers

There are minor discrepancies between the forms suggested by WHO and those used by the NTP. However, changes introduced by the NTP complicate the use of some important information. For instance, the Laboratory register and the Register of MDR-TB patients do not have the date the sputum collection resistant culture was grown. This diminishes the possibilities of linking the resistance development date to the use of drugs, if any.

The quality of filling in forms is important for further use of data. For instance, when those requesting examination do not mark whether sputum was sent for diagnostic or treatment follow up purposes, or the month of treatment is not indicated, the laboratory has problems deciding what to do with the grown culture.

The register for MDR-TB patients serves in fact as *Register of MDR-TB patients on treatment.* Dr. Safarova Zulfiya, National MDR-TB Coordinator, keeps it as a kind of Master list of MDR-TB patients on SLD treatment. MDR-TB coordinators of rayons have similar registers which containing only their own patients. The *Register of MDR-TB patients on treatment,* includes patients with confirmed MDR-TB diagnosis from TB-03 DOTS who were granted an SLD treatment regimen. Other MDR-TB and category IV patients, who do not get SLD treatment, remain registered in TB-03 DOTS.

The application of only one mark for all drugs prescribed is problematic and a solution is under development. Another problem with MDR-TB 01 is not using agreed symbols when marking observed intake or drugs are handed over for self-administration (see also DOT section).

There are several working forms for data collection (on patient's treatment during previous episodes, readiness for treatment of actual episode, register of side effects to anti-TB drugs and others), adopted from other projects. Today not all of them are equally used. It would be useful to revise them and introduce changes necessary. We discussed our observations with the National MDR-TB coordinator, Zulfija Safarova, and QHCP TB director, Roza Adilbekova.

15.1 TREATMENT OUTCOMES

We made interim analyses of the 2009 cohort using electronic Register of MDR-TB patients on treatment rigorously using definitions of the NTP. We found that patients classified as "cured" often should be classified "treatment completed"; patients, who might be classified as failure, were still on SLD treatment (Table 15).

TABLE 15: MDR-TB 2009 COHORT TREATMENT INTERIM OUTCOMES, TAJIKISTAN*

Year	Treatment started	Cure	Failure	Died	Defaulted	Still on Treatment
Dushanbe	39	8 (20.5 %)	0 (0 %)	5(12.8 %)	2(5.1 %)	24(61.5 %)
RT	52	13 (25 %)	1(1.9 %)	7(13.5 %)	2(3.8 %)	29(55.7 %)

* Sputum smear conversion, mean (min-max), *days* - 133 (31-369);

*Culture conversion mean (min-max), *days* - 114 (31-244).

15.2 COMMENTS AND CONCLUSIONS

Some observations and comments on recording and reporting, relevant to individual components of MDR-TB case management, are mentioned in respective sections of the report. It may be concluded here, that the program uses a recording and reporting system which was developed based on international recommendations. It also includes some country specific working forms. However, taking some of the WHO recommended forms as they are and the other forms with changes introduced diminished utility of the forms and created a need for making additional working tables *(e.g. Laboratory register of tests of MDR-TB patients enrolled for SLD treatment)*. The quality of recoded data and submission is sometimes problematic: incomplete or wrong data, delivery delay, limits or makes analysis impossible (e.g. *MDR-TB 01 without updated results from the bacteriological lab and correct recording of DOT is useless*). Achieving better quality of MDR-TB (and DOTS) information collection and reporting should be the first priority. It is the key for further improvements.

16. COLLABORATION BETWEEN CIVIL AND PENITENTIARY SYSTEMS

Penitentiary institutions have their own SSM facilities. Culture and DST is performed in the National laboratory as described in the section above. CMCC MDR-TB is the same; regimens used are similar to the civil TB services. The prison system usually informs about released prisoners. The penitentiary System (PS) gives TB drugs for the continuation phase to released prisoners for self-administration. The Dushanbe City TB Center said that the city had very few ex-prisoners in treatment per year: in 2009-3, in 2010-2, in 2011-2. It is likely that the referral system is weak.

15.1.STRUCTURE OF PENITENTIARY TB SERVICES*

Both, the Central Prison Hospital (No 3/13) and its branch in Khujand, Sughd province have TB departments. The Central Prison Hospital has a capacity of 100 beds and the Sughd branch has 40 beds. In addition, TB isolators are available in seven penitentiary facilities, mostly refurbished, with the support of the Caritas Luxemburg, which has been implementing a TB project in the PS since 2006.

The TB units are available in the following colonies: a) Well functioning isolators: Dushanbe isolator No 3/4 - 50 beds; Khujand isolator No 3/3 – 24 beds; Dushanbe isolator No 3/7 - 10 beds; Javan isolator No 3/6-12 beds; and children isolator No 3/12-7 beds. b) There is a need to strengthen the following health care units with regard to TB control:

Dushanbe isolator No 3/2 - 30 beds – the health care workers in this facility rely on the performance of the inmate in providing TB care to patients and implementing TB control-related activities, which makes the system not sustainable in the long run. Nurek isolator No 3/8 - 25 beds; Khujand isolator No 3/5 – 25 beds; Javan isolator No 3/6 - 25 beds

There is no TB isolator in one of the biggest SIZO 3/1 (approximately 1,800 inmates) and also in Kurgan-Tube strict regimen prison No 9/7 (approximately 700 inmates). We were told that there is a possibility to contract a civilian TB doctor in 50% position to provide services in the Kurgan-Tube prison No 9/7. The problem in SIZO No 3/1 is more difficult to solve as the SIZO is planned to be closed, but the decision to close has been postponed until later. Meanwhile, no improvements are planned there and due to the inflexibility of the system there are delays of several weeks in transferring of infectious prisoners to the Central TB Hospital (CTBH).

There is a newly opened TB unit in SIZO 2, and Colony 1.

There are seven sputum smear laboratories in the PS with a rather low workload (in some of them less than 500 smears per year). In addition, two civilian labs are serving the colonies 3/5 and 3/3. There are no labs in colonies 3/1, 3/7, and 3/12. X-rays are available in colony 3/5 and 3/4. The rest are covered by the mobile MMR bought through the GFATM for the PS or by the NTP MMR (Kuljab, Khorog).

15.2. CENTRAL PRISON HOSPITAL (CPH) IN VAHDAT (COLONY 13)

The CPH is located 11 km from the capital Dushanbe and is serving 13 colonies, including 3 SIZO, two settlement colonies, one prison for young offenders, and one prison for women. There are two departments in the CPH, one general hospital (200 beds) and a TB department with 120 beds. There are 35 positions for health care workers. Out of them there are 18 doctors, including one TB doctor. In addition there are 17 positions for nurses; out of those half are not filled.

The TB department for MDR-TB - fourteen beds and in addition five rooms with three beds each under renovation (UNDP/PS). It will be a total of 29 beds. In addition there are rooms where severely sick patients from colony 3/1 are received. On the first floor, there are four beds for those waiting for MDR-TB treatment. In another building, separated by the gate, there are two rooms, with five beds in each for SS- patients (renovated by CL).

15.3. MDR-TB PILOT SITES IN THE THREE COLONIES OF THE PS

During the period from November 2009 to November 2010, the sputum of 194 patients was sent for culture (and DST) to NRL. The patients were not necessarily notified during the same period. Out of those tested, 47 were found to have MDR-TB, two PDR-TB. Out of 47: eighteen are on CAT IV, one died, one refused to provide sputum for culture while on treatment. In addition two refused before treatment, eight were released, thirteen died, and five were on the waiting list to be enrolled in treatment.

16. TB/HIV COLLABORATIVE PERFORMANCE

HIV infection is a growing problem, although there are not many patients with co-infection. All TB patients are offered HIV testing in civilian and penitentiary services and all MDR-TB cases have been tested for HIV so far. There were no HIV positive patients in the MDR-TB cohort of Dushanbe city in 2009. It was said that VCT is usually done for all patients. In the case where an HIV test is positive the patient is referred to the HIV/AIDS center. The HIV/AIDS center is providing counseling, measuring the CD4 cells load and providing treatment if necessary. The critical CD4 count level for starting ARV has been recently raised from 200 to 350 cells.

The HIV positive patients are screened by TB services for TB. The IPT is not commonly used.

TABLE 16: NUMBER OF HIV AND TB CASES IN TAJIKISTAN IN 2005-2009

	2005	2006	2007	2008	2009

HIV notified	189	204	339	373	431
HIV notified among TB patients	0	10	15	48	21
TB notified among HIV patients	12	5	39	31	28
Total TB /HIV	12	15	54	79	49
TB notified	4,675	5,917	7,689	7,961	7,479
Tested for HIV among TB			306	2,545	3,714
Proportion (%) tested for HIV out of notified TB	0	0	4.0	32.0	49.7

17. FINAL COMMENTS AND CONCLUSIONS

Two weeks for intensive site visits, contacts with NTP participants, health officials and international program partners was a good opportunity to get a feeling for the MDR-TB case management situation in Dushanbe and Vakhdat. However, deep situation analysis of almost all MDR-TB case management components of an unfamiliar program was a challenging task. My visit overlapped with the mission of the GLC experts, which reduced the possibilities to spend more time with the NTP officials. On the other hand, it was a great opportunity to participate in discussion of their findings at the RCTP director's office. Some of my conclusions might be doubtful because of incomplete or fragmental information. They can be taken as an opinion and further study is needed to confirm or deny my findings. The main conclusions are as follows:

- Dushanbe city and Vakhdat rayon have a solid base for MDR-TB case management projects (e.g. recently approved NTP and the National guidelines for MDR-TB case management).
- There is a network of specialized TB and general PHC institutions integrating agreed TB control activities needed for case detection, diagnosis and treatment.
- There is also valuable experience of collaboration with international donors and donor organizations based on declared commitment to international MDR-TB case management standards. Limited financial and human resources present certain restrictions on improving the MDR-TB case management.
- The weakest part of the MDR-TB case management (as well as non-MDR-TB) is lack of a systematic approach (program management itself). The existing system cannot provide standard high quality services throughout the established period of treatment.
- There is a lack of teamwork for the final result that counts;
- Patients are not an active part of the MDR-TB case management;
- MDR-TB case management performance analysis is not duly employed for program improvement;
- There are gaps in knowledge and skills in some MDR-TB case management elements that should and might be easily removed ;
- Performing things correctly and assuring strict obedience to rules accepted by all MDR-TB case

management participants should not be disputable.

- Removal of general weaknesses have to coincide with the work on MDR-TB case management technical details that should and could be improved.
- DOTS improvement is a part of the success of MDR-TB case management.

18. ANNEXES

ANNEX 1. PROGRAM OF THE VISIT, APRIL 9-23, 2011

Day	Time	Activity
April 11, 2011	Monday	
	8:30–9:30	Meeting with Marian Sheridan, director of Tajikistan country QHCP office
	9:30–10:30	Meeting with Dr. Shekhov A., director of Republican TB Center and Safarova Z., National MDR TB coordinator
	10:30–13:00	Visit to National Reference TB Laboratory and work with the national Laboratory coordinator
	14:00–16:00	Meeting with MOH specialist
	16:00–17:00	Meeting with Pulatova L., head, Dushanbe City TB Dispensary
April 12, 2011	Tuesday	
	8:00–13:00	Visit to Dushanbe City Health Center
	14:00–17:00	Work with doctors and MDR TB patients files
April 13, 2010	Wednesday	
	9:00–10:00	Visit to the Republican TB hospital where MDR TB patients are hospitalized (in Machiton)
	10:00–12:00	Work with MDRTB patients charts on continuation phase
	13:00–14:00	Lunch
	14:00–17:00	Meeting with Makhmadov Abdullo, National monitoring specialist
April 14, 2010	Thursday	
	9:00–13:00	Visit to Dushanbe statistical department, work with reports
	13:00–	Participation at work of CMCC on MDRTB in Dushanbe

	17:00	
April 15, 2010	Friday	
	9:00–11:00	Visit to the city policlinics where MDR TB patients are treated
	11:30–13:00	Work with MDRTB patients charts on continuation phase
	14:30–17:00	Meeting with GF, Republican TB Center, Project HOPE
April 18, 2011	Monday	
	10:00–13:00	Meeting with Republican TB Center
	14:00–17:00	Work at Vakhdat TB Dispensary
April 19, 2011	Tuesday	
	10:00–13:00	Meeting with Dr. Ismoilov A., director, Vakhdat Rayon TBC
	14:00–17:00	Participation at CMCC for MDRTB
April 20, 2010	Wednesday	
	8:00–17:00	Visit of Kurgan Tube rayon MDRTB hospital and Jami where patients get continuation phase.
April 21, 2010	Thursday	
	8:30–15:00	Work at the office on summary of the visit results
	15:00–17:00	Meeting with Dr. Safarova Z., MDR TB coordinator, RCPT
April 22, 2010	Friday	
	9:00–16:00	Work at the office on summary of the visit results
	16:00–17:00	Meeting with Makhmudov Alisher, deputy of Tajikistan Country QHCP director, on the mission results.
April 23, 2010	02:30	Departure

ANNEX 2. MDR-TB DATA AMONG THE PATIENTS TESTED FROM MDR-TB PILOT SITES DURING THE PERIOD NOV 1, 2009 - SEPT 1, 2010*

	New		Previously treated		Total	
	No	**%**	**No**	**%**	**No**	**%**
Total tested	323	100	285		608	
Sensitive	180	55.7	69	24.2	249	41.0
Any resistance	143	44.3	216	75.8	359	59.0
Mono Resistance						
H	7	2.2	7	2.5	14	2.3
R	3	0.9	5	1.8	8	1.3
E	2	0.6	0	0.0	2	0.3
S	27	8.4	9	3.2	36	5.9
sub-total	39	12.1	21	7.4	60	9.9
H+R Resistance						
HR	6	1.9	27	9.5	33	5.4
HRE	0	0.0	8	2.8	8	1.3
HRS	38	11.8	61	21.4	99	16.3
HRES	38	11.8	75	26.3	113	18.6
sub-total	**82**	**25.4**	**171**	**60.0**	**253**	**41.6**
H other resistance						
HE	5	1.5	0	0.0	5	0.8
HS	11	3.4	15	5.3	26	4.3
HES	0	0.0	5	1.8	5	0.8

sub-total	16	5.0	20	7.0	36	5.9
R other Resistance						
RE	0	0.0	0	0.0	0	0.0
RS	6	1.9	4	1.4	10	1.6
RES	0	0.0	0	0.0	0	0.0
sub-total	6	1.9	4	1.4	10	1.6
Other Poly-resistance				0.0	0	0.0
ES	0	0.0	0	0.0	0	0.0
Any resistance to H	105	32.5	198	69.5	303	49.8
Any resistance to R	91	28.2	180	63.2	271	44.6

*Source– GLC report of Kai Blondal, Nov 2010

ANNEX 3.NATIONAL LABORATORY DATA ON PATIENTS TESTED AT Q1 2011

Period	Jan 1, 2011	to	Mar 25, 2011	
	Resistance among new cases		**Resistance among those treated at the past**	
	NO.	**%**	**NO.**	**%**
Number of tests	337		183	
Total DST	**36**		**12**	
Susceptible toall TB drugs	**20**	**56%**	**3**	**25%**
Any resistance				
Isoniazid (H)	12		8	
Rifampicin (R)	10		7	
Ethambutol (E)	12		8	
Streptomycin (S)	3		5	
Mono resistance	**5**	**14%**	**2**	**17%**
Isoniazid (H)	1	3%	1	8%
Rifampicin (R)	-	0%	-	0%
Ethambutol (E)	-	0%	-	0%
Streptomycin (S)	4	11%	1	8%
MDRTB	**10**	**28%**	**7**	**58%**
H + R	3	8%	-	0%
H + R + E	-	0%	-	0%
H + R + S	4	11%	2	17%

H + R + E + S	3	8%	5	42%
Poly	**1**	**3%**	**-**	**0%**
H + E	-	0%	-	0%
H + S	1	3%	-	0%
H + E + S	-	0%	-	0%
R + E	-	0%	-	0%
R + S	-	0%	-	0%
R + E + S	-	0%	-	0%
E + S	-	0%	-	0%

ANNEX 4. TREATMENT OUTCOMES OF TB NEW SS+ CASES, %

A. National

	Cured	Completed	Failure	Died	Default	Transferred out
Q1-2009	78.6	4.4	7.2	4.2	4.7	0.9
Q2-2009	74.6	7.3	7.9	4.7	4.3	0.9
Q3-2009	74.7	6.1	9.3	3.4	4.3	2.2
Q4-2009	73.3	5.2	5.5	7.9	6.2	1.0
Total	*75.4*	*5.9*	*8.1*	*4.4*	*4.8*	*1.3*

B. Dushanbe

	Cured	Completed	Failure	Died	Default	Transferred out
Q1-2009	51.6	0	19.4	9.7	16.1	3.2
Q2-2009	65.3	6.1	12.2	4.1	8.2	4.1
Q3-2009	67.7	0	19.4	6.5	3.2	3.2
Q4-2009	80.0	2.9	2.9	8.6	2.9	2.9

C. Vakhdat

	Cured	Completed	Failure	Died	Default	Transferred out
Q1-2009	75	0	25	0	0	0
Q2-2009	92	0	4	4	0	0
Q3-2009	75	0	18.8	0	6.3	0
Q4-2009	73.3	0	13.3	0	13.3	0
Total	*80.6*	*0*	*13.9*	*1.4*	*4.2*	*0*

ANNEX 5 . CMCC MEMBERS AND TRAINING RECEIVED ON MDRTB CASE MANAGEMENT

	Name, position	MDR-TB Training	Training date
1	Shekhov A. J.,chairman	Almaty	2009
2	Safarova Z.A., National MDRTB coordinator	Tomsk	2009
3	Abdulloev Z., deputy on clinical issues	Tomsk	2009
4	Rustamov S., head of Machiton TB hospital	Riga	2006
5	Saidrakhmonov B., head of Rudaki TB hospital	Orel	2009
6	Shopolotov, MDR TB physician	Orel	2009
7	Pulatova L.M., head of Dushanbe TB Center	Orel	2009

ANNEX 6. LIST OF PEOPLE MET

Bobokhodjaev O, MOH specialist

Sheridan M, QHCP director

Makhmudov A, deputy director of QHCP project.

Shekhov A, director of Republican TB Center of Tajikistan

Safarova Z, National MDRTB coordinator

Rustamov., head doctor of Republican TB Hospital

Oligoev M, head of TB ward for new cases

Salikhov B., head of MDRTB ward of Machiton

Makhmudova M., regional TB drugs specialist of QHCP

Musaeva Z., HIV director in Tajikistan of QHCP

Adilbekova R., TB director in Tajikistan of QHCP

Shopolotov, MDR TB specialist, former head of MDRTB ward

Pulatova L., head doctor of Dushanbe City TB Center

Abdullaeva M, head of the National bacteriologic laboratory

Mirzoeva N, area TB doctor of HC #6

Erik van Twillert, family doctor

Makhmatov A, National Monitoring specialist

Kai Blondal, GLC expert

Komolov R., head of Khatlon TB oblast center in Kurgan Tube